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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,190	04/28/2005	Lucyna Pawlowska	CH8070US	5375
7590 12/05/2007 Lanxess Corporation Law & Intellectual Property Department 111 RIDC Park West Drive Pittsburgh, PA 15275-1112			EXAMINER CORDRAY, DENNIS R	
			ART UNIT 1791	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/533,190

Applicant(s)

PAWLOWSKA ET AL.

Examiner

Dennis Cordray

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-13,46 and 47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13,46 and 47 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/24/05, 6/22/05</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of the invention of Group 1, Claims 1-13, 46 and 47 in the reply filed on 10/5/2007 is acknowledged.

### ***Priority***

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. This application is not entitled to the benefit of the prior-filed provisional application 60/434213 because the instant application has no inventor or inventors in common with those named in the prior-filed provisional application as required by 37 CFR 1.78 (a)(4) (also see MPEP 201.11).

Applicant is required to delete the reference to the prior-filed application.

### ***Oath/Declaration***

The oath or declaration submitted 11/12/2004 is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02. The oath or declaration is defective because:

It does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56.

The originally submitted Oath recites the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR 1.56(a), rather than 37 CFR 1.56.

***Information Disclosure Statement***

The information disclosure statement filed 6/22/2005 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because it does not include either an English language translation or a concise explanation of the relevance of the Other Prior Art Document "Zandersons J. G., et al, 'Gelatinized unmodified starch-stabilized alkenyl succinic anhydride emulsion paper sizing'," which is in the Russian language. The source and date of the document are also indeterminable.

It has been placed in the application file, but the document referenced above has not been considered as to the merits. The remaining cited documents have been considered. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

***Claim Objections***

Claim 5 is objected to because of the following informalities: in line 4, a comma should be inserted after the word "salts". Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 6 and 46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites "the polymer" in Claim 1, but fails to specify whether the referenced polymer is the polymer in which the alkenyl succinic anhydride (ASA) is suspended or the second component water soluble polymer, Thus making the claim indefinite.

Claim 46 recites an emulsion comprising ASA particles suspended in an aqueous polymer solution; suspended in water. It is not clear how an aqueous emulsion, which contains a polymer and ASA particles suspended in water, is further suspended in water.

Claim 6 recites the limitation "the surfactant component" in Claim 1. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(f) he did not himself invent the subject matter sought to be patented.

Claims 1-13, 46 and 47 are rejected under 35 U.S.C. 102(f) because the applicants did not invent the claimed subject matter. U.S. Provisional Application

60/434213, filed 12/17/2002 by different inventors, discloses the claimed subject matter as follows:

Claims 1-2 and 46: An aqueous sizing composition comprising (a) an emulsion comprising ASA particles suspended in a first starch component (an aqueous polymer solution) and (b) a second starch component selected from non-ionic starches, ionic starches and mixtures thereof such that the starch:ASA ratio is sufficiently high (ASA is sufficiently dilute) to impart useful sizing properties to a fibrous substrate (p 4, line 26 to p 5, line 5). In an alternate embodiment, the first starch component is replaced by an aqueous anionic, cationic, non-ionic or amphoteric vinyl addition or condensation polymer (p 19, line 30 to p 20, line 5; p 21, lines 5-14).

Claim 3: The ASA:starch ratio ranges from 1:20 to 5:1 (p 8, lines 10-20), which significantly overlays the claimed range.

Claim 4: The ASA is present in the emulsion in an amount from 0.01% to 20% (p 9, lines 16-20), which significantly overlays the claimed range.

Claims 5-6: The composition can comprise the claimed surfactants in the claimed ratio (p 20, lines 18-29; p 21, lines 25-32).

Claims 7, 12 and 13: The particle size ranges from 0.1 to 50 microns, which significantly overlays the claimed range. The particle size distribution can be mono-modal or multi-modal (p 11, lines 3-20).

Claim 8: The ASA can be from 1% to 99% hydrolyzed (p 9, lines 12-15).

Claims 9-10: Treated substrates having Cobb sizing and HST values overlaying the claimed ranges and values are disclosed (p 16, lines 11-28).

Claim 11: The temperature at which the sizing composition is used is from about 140 °F to about 180 °F (p 15, lines 27-30), thus coalescing is minimized in this range, which significantly overlays the claimed range, so the sizing can be used effectively.

Claim 47: The invention embodies other cellulose reactive agents (p 19, lines 17-19).

Claims 1-7, 9-11 and 46-47 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Frolich et al (5969011) as evidenced by Nasu et al (5756646).

Frolich et al discloses an aqueous dispersion of cellulose-reactive sizing agent and a dispersant system comprising a cationic organic compound and an anionic stabilizer (Abs; col 3, lines 3-5). The sizing agent can be an alkylene ketene dimer (AKD) or ASA (col 2, lines 24-60). The cationic organic compound can be a quaternary ammonium surfactant (quaternary salt of a tertiary amine) or a cationic polyelectrolyte, such as a cationic condensation polymer or vinyl addition polymer (col 3, line 17 to col 4, line 4; col 4, lines 12-28). The anionic stabilizer can be a starch or a condensation or vinyl addition polymer made from monomers having anionic groups (col 4, line 66 to col 5, line 20). The disclosed anionic polymers embody water soluble polymers (see Nasu et al, col 1, lines 15-21 if evidence is needed). The sizing agents have a particle size from 0.1 to 3.5 microns in diameter (col 6, lines 50-53). Thus, in one embodiment, the dispersion comprises ASA particles suspended in a polymer solution comprising a

cationic polyelectrolyte and having a second component that can be a water soluble anionic starch or polymer.

Alternatively, in a preferred embodiment, the dispersion can be mixed with a retention aid, such as a cationic starch or cationic acrylamide-based polymer (col 9, lines 18-26). In this embodiment, the ASA or AKD is a dispersion in an anionic polymer with a cationic surfactant, and the retention aid is the second water soluble polymer component.

The sizing agent is present in the dispersions in an amount from 0.1 to 50% by weight (col 6, lines 32-34). The cationic component is present in an amount up to 100% by weight based on the amount of sizing agent, usually from 0.1 to 20% by weight and preferably from 2 to 7% by weight (col 6, lines 1-13). The anionic stabilizer in an amount up to 100% by weight based on the amount of sizing agent, usually from 0.1 to 20% by weight and preferably from 0.3 to 6% by weight (col 6, lines 13-16). The disclosed composition significantly overlays the claimed composition and ASA:polymer ratio.

Examples are disclosed of improved sizing properties imparted to paper (a fibrous substrate) (cols 11-13; Examples 4-9), thus the ASA is sufficiently dilute to provide useful sizing properties. Suitable temperatures for AKD are from 55 to 95 °C, while lower temperatures can be used for acid anhydrides (col 6, lines 48-50), thus the emulsion (first component) can be heated. Since no particular temperature values are attributed in claim 46 to the word "heated," the Examiner considers the disclosure of Frolich to be anticipatory toward claim 46.



The claimed sizing properties are not explicitly disclosed. In some embodiments, the disclosed sizing composition is substantially identical to the claimed composition thus will provide the claimed sizing properties and stability at temperatures from 40 to 185 °F or, at least, obtaining the sizing properties and stability would have been obvious to one of ordinary skill in the art at the time of the invention. Where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

Claims 1-6, 9-11 and 46-47 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Novak (4606773).

Novak discloses an emulsion of ASA sizing agent prepared using a cationic water-soluble polymer, a cationic starch and a surfactant (Abs; col 2, lines 21-29 and 51-54). In a preferred embodiment, the ASA is present in an amount of 75-99.5 parts by weight and the surfactant in an amount from 0.5 to 25 parts (col 2, lines 59-64). The disclosed amount of surfactant overlaps the claimed composition. Suitable surfactants include ethoxylated nonyl phenols (ethoxylated fatty alcohols), polyethylene glycols, PEG 400 mono-oleate (ethoxylated fatty ester) and others (col 3, lines 7-13). The water-soluble polymers can be vinyl addition or condensation polymers (col 3, line 20 to

col 4, line 1). The ASA emulsions generally contain 40-99.9 wt-% water, 0.01-50 wt% ASA, 0.001-25 wt% water-soluble polymer and 0.001-25 wt% cationic starch (col 4, lines 60-66). The disclosed compositions significantly overlay the claimed composition. The disclosed compositions comprise an emulsion of ASA suspended in an aqueous polymer solution that also comprises a cationic starch and a surfactant.

In Example 4 (col 6, lines 7-29), several ASA compositions were prepared. Emulsion A was prepared by emulsifying ASA in a 5% aqueous solution of epichlorohydrin-dimethylamine copolymer. In a first method, Emulsion A was then diluted with a 5% solids solution of epichlorohydrin-dimethylamine copolymer to form Emulsion B. A portion of Emulsion B was further diluted with water to form Emulsion C. In a second method, Emulsion A was diluted with a 5% solids solution of epichlorohydrin-dimethylamine copolymer plus additional water to form Emulsion D. Emulsion E was a 5% ASA emulsion formed using an aqueous starch/epichlorohydrin dimethylamine copolymer composition. Emulsion F was formed by diluting Emulsion E with water. The various compositions prepared can be compared with components (a) and (b) of the claimed composition as follows:

Emulsion B -Emulsion A corresponds to claimed component (a) while the additional epichlorohydrin-dimethylamine copolymer corresponds to component (b).

Emulsion C -Emulsion B corresponds to claimed component (a) while the additional water corresponds to component (b).

Emulsion D -Emulsion A corresponds to claimed component (a) while the additional epichlorohydrin-dimethylamine copolymer + water corresponds to component (b).

Emulsion F -Emulsion E corresponds to claimed component (a) while the additional water corresponds to component (b).

The claimed sizing properties are not explicitly disclosed. In some embodiments, the disclosed sizing composition is substantially identical to the claimed composition thus, for reasons previously given, will provide the claimed sizing properties and stability at temperatures from 40 to 185 °F or, at least, obtaining the sizing properties and stability would have been obvious to one of ordinary skill in the art at the time of the invention.

Claims 1-3, 7, 9-12 and 46-47 are rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Wasser (WO-07/05330).

Wasser discloses a sizing composition comprising ASA emulsified in an aqueous polymer solution (Abs; p 1, lines 5-9; p 2, lines 20-21; p 4, lines 19-34). Suitable polymers include cationic polymers reactive to ASA and those non-reactive toward ASA (p 5, line 22 to p 6, line 25). The disclosed polymers comprise vinylalcohol, vinylamine, vinylacetate, vinylformamide, quaternary ammonium, acrylamide and alkyl methacrylate monomers, thus can be vinyl addition polymers. Particle sizes were from 1.5-2 microns (p 5, lines 15-21). In Examples 5-32, the emulsions were formed (corresponding to claimed component a), then post-diluted with either additional synthetic cationic polymer or with cationic starch (corresponding to claimed component b) (p 7, line 25 to p 9, line

27). The initial ratio of cationic polymer to ASA was 0.13:1, which falls within the claimed range (p 7, lines 25-26; p 8, Table II, Example 5).

The claimed sizing properties are not explicitly disclosed. In some embodiments, the disclosed sizing composition is substantially identical to the claimed composition thus, for reasons previously given, will provide the claimed sizing properties and stability at temperatures from 40 to 185 °F or, at least, obtaining the sizing properties and stability would have been obvious to one of ordinary skill in the art at the time of the invention.

Wasser does not disclose whether the particle size distribution is mono-modal or multi-modal, but does disclose a narrow particle size range (1.5-2 microns). It would have been obvious to one of ordinary skill in the art from the disclosed size range that the particle size distribution is mono-modal.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frolich et al, Novak or Wasser as evidenced by Chunyu ("Alkenyl Succinic Anhydrides (ASA): a Neutral Sizing Agent").

Frolich et al, Novak and Wasser do not disclose hydrolyzed ASA. It is well known that ASA is very reactive and will readily hydrolyze in the presence of water (see Chunyu, p 3, Figure 4 and paragraph immediately below the figure). It would have been obvious to one of ordinary skill in the art to obtain an amount of hydrolyzed ASA within the claimed range due to the large amount of water present in the sizing compositions.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frolich et al.

Frolich et al does not disclose whether the particle size distribution in the sizing compositions is monomodal or multimodal. However, compositions having a broad range of particle sizes from 0.1 to 3.5 microns are disclosed by Frolich et al. No evidence of surprising results is given or discussed in the instant Specification for using a multimodal particle distribution over a monomodal distribution and no comparison is made with the nearest prior art cited herein. Absent any evidence of surprising properties of the solutions of the instant invention over the disclosure of Frolich et al or Novak, it would have been obvious to one of ordinary skill in the art to use any kind of particle distribution, monomodal or multimodal for the sizing composition of Yoshioka et al as functionally equivalent options.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims

are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-2, 4-13, 46 and 47 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-12, 44 and 45 of copending Application No. 10/534202. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the copending application are generic to the instant Claims. The copending application recites aqueous sizing compositions comprising emulsions having the same cellulose reactive sizes and a surfactant (a), and a starch component (b). The open claim language of the copending application permits a species of the invention comprising an emulsion also containing a polymer, thus are generic to the instant claims. The sizing compositions have the same or overlapping features and sizing effects on fibrous substrates.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1, 6-13, 46 and 47 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4-11, 30 and 33 of copending Application No. 10/533702. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the copending application are a species of the instant Claims. The copending application recites aqueous sizing compositions comprising emulsions having the same cellulose reactive sizes suspended in a starch solution (starch is a polymer), optional surfactant, and a second component that can be a starch or polymer. The sizing compositions have the same or overlapping particle sizes and sizing effects on fibrous substrates.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ettl et al (6001166), Hassler et al (6159339) and Dilts et al (US 2003/0205167) disclose other cellulose-reactive size emulsions comprising polymers, starch and surfactants.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*DRC*  
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